

Throttle valve GRLO

FESTO



Characteristics

At a glance



Adjustable unidirectional/bidirectional flow control valve.

- Flow control valve, throttling at both ends
- Precision adjustment for low and medium speeds
- Metal version

Series

One-way flow control valves can be used to regulate the piston speed of pneumatic actuators in the supply and return flow. This is achieved by suitably throttling the flow rate of compressed air in the exhaust air or supply air direction.

With the GRLO throttle valve, the throttling function takes place in both directions.

The throttle function is achieved through an adjustable annular gap inside the valve. This gap can be increased or reduced by turning the knurled screw or slotted screw. This adjustment component can be used to set the desired throttling.

Type code

001	Series	
GRLO	Needle valve, elbow outlet	
002	Pneumatic connection	
M3	External thread M3	
M5	External thread M5	
003	Pneumatic connection 1	
	Connection size as for connection 1 or 2	
PK-3	CK connection 3 mm	
QS-3	Push-in connector, 3 mm	
QS-4	Push-in connector, 4 mm	

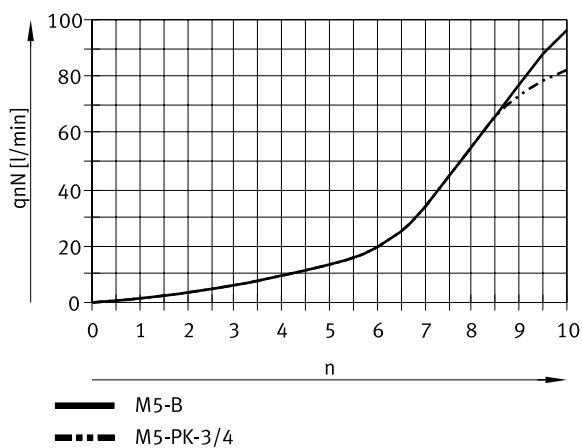
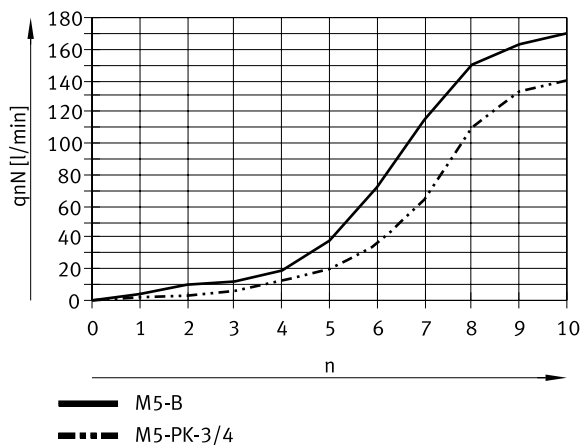
004	Flow rate characteristic	
	Without	
LF	Low flow	
005	Generation	
	Without	
B	Series B	
C	Series C	

Datasheet

Technical data – internal thread/barbed connector

Pneumatic connection 1	M5	
Pneumatic connection 2 ¹⁾	M5	PK-3
Valve function	Flow control function	
Adjusting element	Slotted screw	
Type of mounting	Screw-in	
Mounting position	Any	
Max. tightening torque	1.5 Nm	
Operating pressure	0 ... 10 bar	
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]	
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)	
Ambient temperature	-10 ... 60°C	
Temperature of medium	-10 ... 60°C	
Material of adjusting screw	Brass	
Swivel joint material	Die-cast zinc	
Material of screwed plug	Brass, Nickel-plated	
Seals material	NBR	
Note on materials	RoHS compliant	
LABS (PWIS) conformity	VDMA24364-B1/B2-L	
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1	

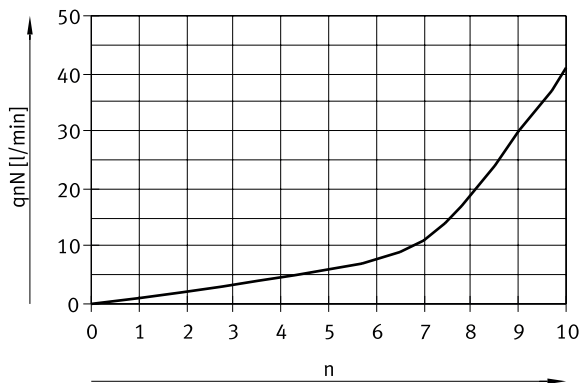
1) M5: This product conforms to ISO 1179-1 and ISO 228-1

Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n 

Datasheet

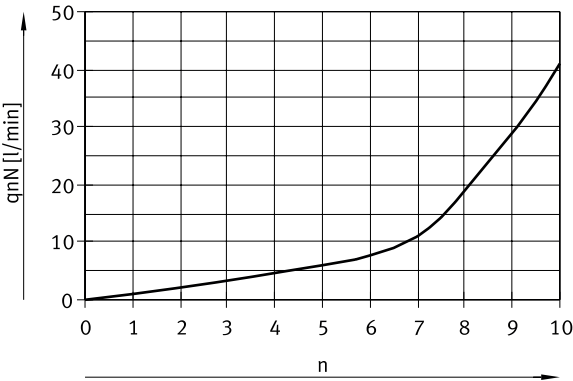
Technical data – Push-in connector QS

Pneumatic connection 1	M3	M5
Pneumatic connection 2	QS-3	QS-3, QS-4
Valve function	Flow control function	
Adjusting element	Slotted screw	
Type of mounting	Screw-in	Screw-in, With external thread
Mounting position	Any	
Nominal tightening torque	–	1.3 Nm
Tolerance for nominal tightening torque	–	±20%
Max. tightening torque	0.3 Nm	–
Operating pressure	–	0 ... 1 MPa
Operating pressure	0 ... 10 bar	
Operating pressure	–	0 ... 145 psi
Operating pressure for entire temperature range	–	0 ... 10 bar
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]	
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)	
Ambient temperature	-10 ... 60°C	
Temperature of medium	-10 ... 60°C	
Material of adjusting screw	Brass	
Swivel joint material	Die-cast zinc	
Material of screwed plug	Brass	–
Seals material	NBR	
Note on materials	RoHS compliant	
LABS (PWIS) conformity	VDMA24364-B1/B2-L	
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1	

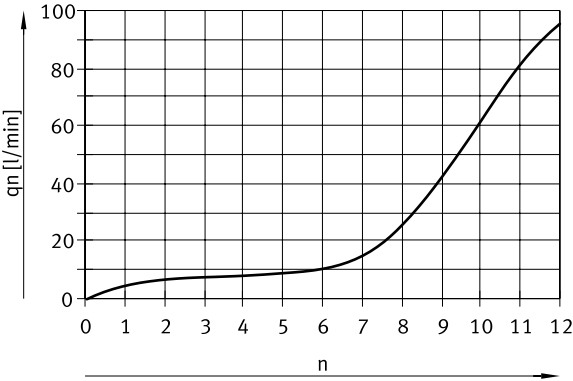
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GRLO-M3)

Datasheet

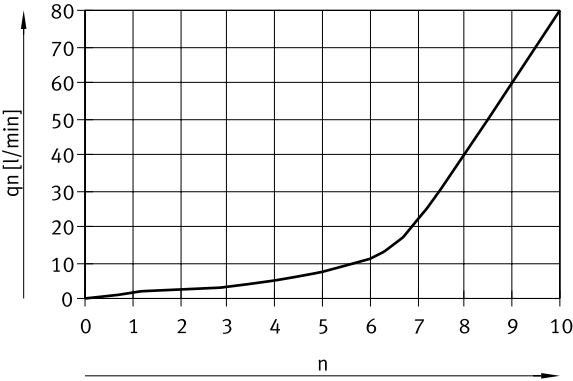
Standard nominal flow rate q_N at 6 → 5 bar as a function of spindle rotations n (GRLO-M5)



Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n (GRLO-M3)



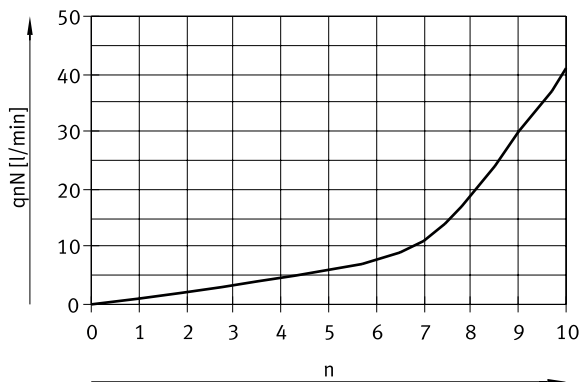
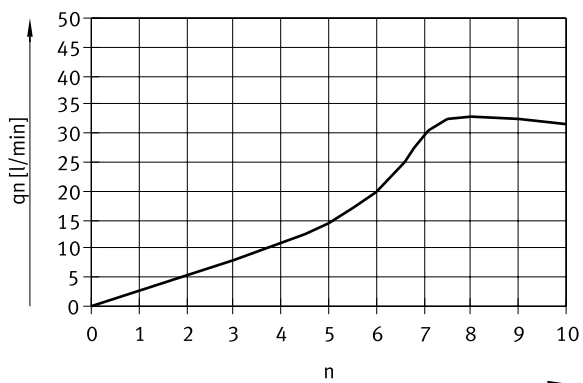
Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n (GRLO-M5)



Datasheet

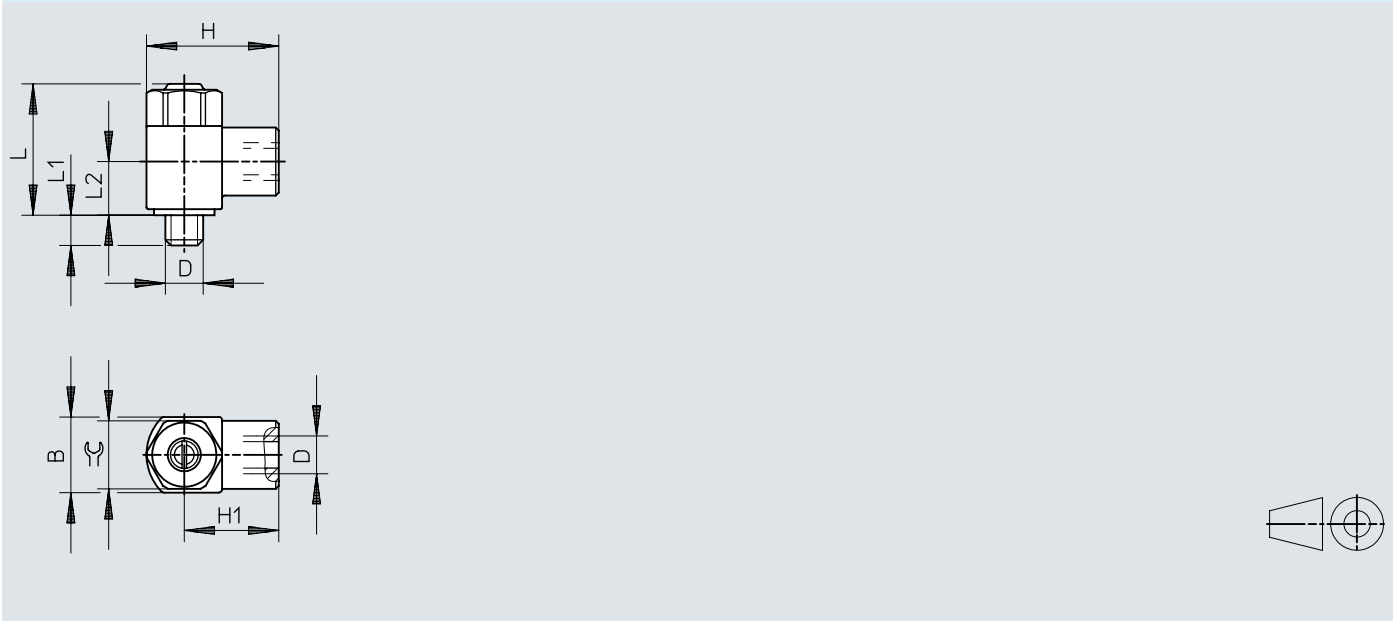
Technical data – Internal thread

Pneumatic connection 1	M3
Pneumatic connection 2	M3
Valve function	Flow control function
Adjusting element	Slotted screw
Type of mounting	Screw-in
Mounting position	Any
Max. tightening torque	0.3 Nm
Operating pressure	0 ... 10 bar
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)
Ambient temperature	-10 ... 60°C
Temperature of medium	-10 ... 60°C
Material of adjusting screw	Brass
Swivel joint material	Die-cast zinc
Material of screwed plug	Brass
Seals material	NBR
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1

Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n 

Dimensions

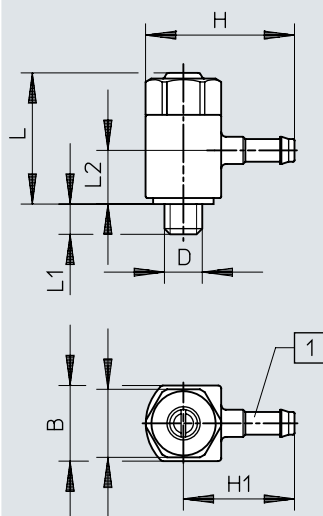
Dimensions – GRLO, female thread Download CAD data www.festo.com



	D	B	~H	~H1	~L	L1	~L2	⌀
GRLO-M5	M5	10 -0,15	17,5	12,5	18 ±6,2%	4 ±0,3	7,1	9

Dimensions

Dimensions – GRLO, push-in connector

[Download CAD data](#) www.festo.com


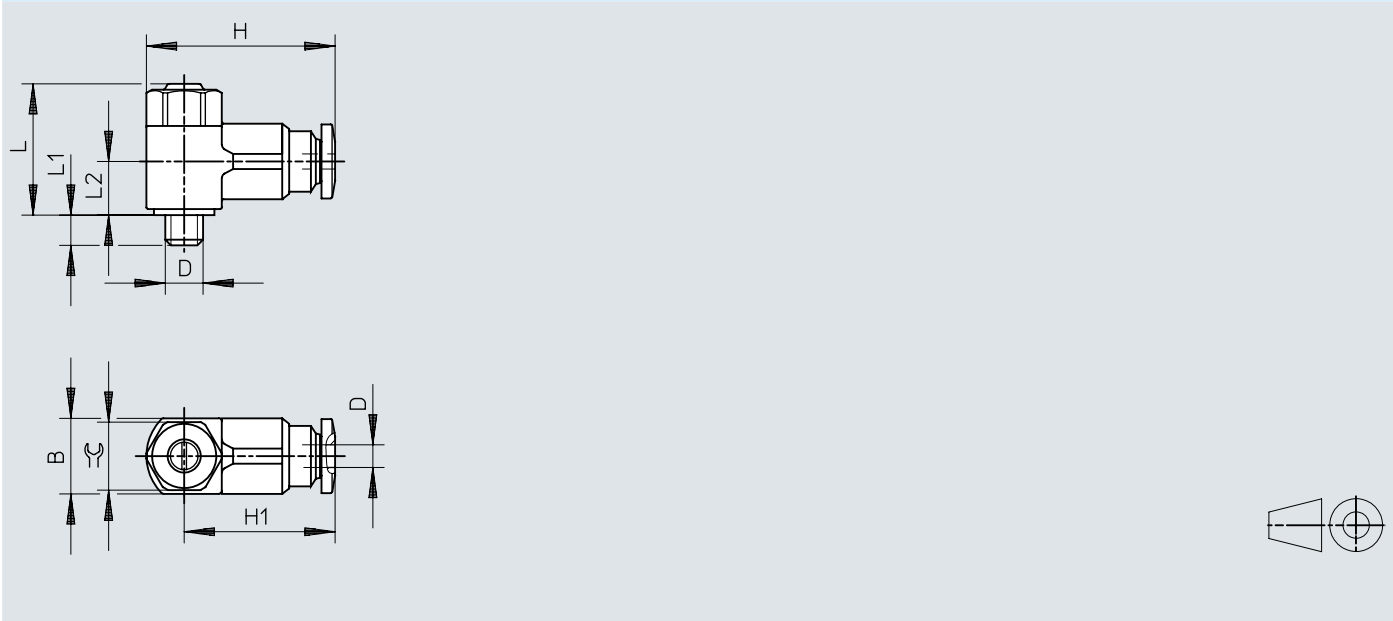
[1] Barbed connector



	D	B	~H	~H1	~L	L1	~L2	≙
GRLO-M5-PK-3	M5	10 -0,15	19,7	14,7	18 ±5,7%	4 ±0,3	8,5	9

Dimensions

Dimensions – GRLO, Mini Download CAD data www.festo.com

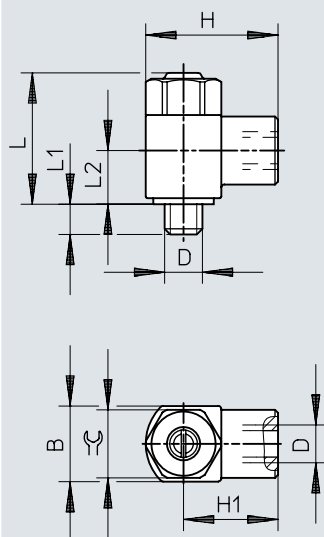


	D	D1 ø	B	~H	~H1
GRLO	M3	3	8 -0,15	20	15,8
	M5	3	9,8 -0,15	22,4	18,4
		4	9,8 -0,15	22,2	18,2

	D	~L		L1	~L2	⊕
GRLO	M3	16,6	±3,3%	2,3 +0,15/-0,3	7	7
	M5	17,2	±3,1%	3,1 +0,15/-0,35	7,3	
		17,2	±3,1%	3,1 +0,15/-0,35	7,3	

Dimensions

Dimensions – GRLO, female thread, metal

Download CAD data www.festo.com

	D	B	~H	~H1	~L	L1	~L2	≡C
GRLO	M3	5 -0,1	9	6,5	13,4 ±3,9%	2,5 +0,15/-0,3	6,4	4,5

Ordering data

Ordering data – Internal thread/barbed connector

	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard flow rate in flow control direction 6 -> 0 bar	Product weight	Part no.	Type
	M5	83 l/min	140 l/min	10 g	151182	GRLO-M5-PK-3-B
		95 l/min	169 l/min	11 g	151181	GRLO-M5-B

Ordering data – Push-in connector QS

	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard flow rate in flow control direction 6 -> 0 bar	Product weight	Part no.	Type
	M3	41 l/min	95 l/min	7 g	175042	GRLO-M3-QS-3
	M5	40 l/min	80 l/min	9 g	175054	GRLO-M5-QS-3-LF-C
					175057	GRLO-M5-QS-4-LF-C

Ordering data – Internal thread

	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard flow rate in flow control direction 6 -> 0 bar	Product weight	Part no.	Type
	M3	18 l/min	33 l/min	2 g	175039	GRLO-M3